1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$5 + 3x \leq \frac{15x + 9}{3} < 8 + 4x$$

A. $[a, b)$, where $a \in [-9, -0.75]$ and $b \in [-7.5, -1.5]$

B. $(-\infty, a] \cup (b, \infty)$, where $a \in [-2.55, -0.45]$ and $b \in [-5.25, -4.5]$

C. $(a, b]$, where $a \in [-2.48, -0.22]$ and $b \in [-8.25, -2.25]$

D. $(-\infty, a) \cup [b, \infty)$, where $a \in [-2.25, -0.07]$ and $b \in [-6, -2.25]$

E. None of the above.

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2. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No more than 5 units from the number 4.

A. $(-1, 9)$

B. $[-1, 9]$

C. $(-\infty, -1] \cup [9, \infty)$

D. $(-\infty, -1) \cup (9, \infty)$

E. None of the above

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3. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No more than 5 units from the number 7.

A. $[2, 12]$

B. $(2, 12)$

C. $(-\infty, 2) \cup (12, \infty)$

D. $(-\infty, 2] \cup [12, \infty)$

E. None of the above

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4. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{9}{4} - \frac{10}{8}x < \frac{-6}{9}x + \frac{7}{2}$$

A. $(-\infty, a)$, where $a \in [-3.75, 1.5]$

B. (a, ∞), where $a \in [0.75, 3.75]$

C. (a, ∞), where $a \in [-7.5, -0.75]$

D. $(-\infty, a)$, where $a \in [0, 3]$

E. None of the above.

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5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x + 5 < 3x - 3$$

A. $(-\infty, a)$, where $a \in [0.8, 7.8]$

B. $(-\infty, a)$, where $a \in [-1.8, 0.2]$

C. (a, ∞), where $a \in [-0.33, 1.28]$

D. (a, ∞), where $a \in [-2.07, -0.39]$

E. None of the above.

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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7x - 5 \geq 9x + 6$$

A. $(-\infty, a]$, where $a \in [-6.5, -4.5]$

B. $(-\infty, a]$, where $a \in [3.5, 9.5]$

C. $[a, \infty)$, where $a \in [-5.5, 0.5]$

D. $[a, \infty)$, where $a \in [0.5, 6.5]$

E. None of the above.

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9 + 6x > 9x \text{ or } 9 + 6x < 7x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-7.5, -1.5]$ and $b \in [4.5, 9.75]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-9.75, -3.75]$ and $b \in [2.25, 5.25]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-3.75, 5.25]$ and $b \in [6.75, 12]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-10.5, -7.5]$ and $b \in [0, 6]$

E. $(-\infty, \infty)$

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8. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{4}{6} - \frac{8}{4}x \leq \frac{-3}{7}x - \frac{7}{3}$$

A. $[a, \infty)$, where $a \in [0.75, 3.75]$

B. $[a, \infty)$, where $a \in [-3.75, 0.75]$

C. $(-\infty, a]$, where $a \in [-4.5, 0]$

D. $(-\infty, a]$, where $a \in [-0.75, 3.75]$

E. None of the above.

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$8 - 3x > 5x \text{ or } 9 + 3x < 6x$$

A. $(-\infty, a) \cup (b, \infty)$, where $a \in [-5.25, -0.75]$ and $b \in [-3, 0.75]$

B. $(-\infty, a) \cup (b, \infty)$, where $a \in [-2.25, 3]$ and $b \in [0.75, 4.5]$

C. $(-\infty, a] \cup [b, \infty)$, where $a \in [-4.5, 0.75]$ and $b \in [-3, 2.25]$

D. $(-\infty, a] \cup [b, \infty)$, where $a \in [0, 5.25]$ and $b \in [2.25, 8.25]$

E. $(-\infty, \infty)$

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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7 + 3x < \frac{29x + 7}{9} \leq 9 + 3x$$

A. $[a, b)$, where $a \in [26.25, 31.5]$ and $b \in [35.25, 37.5]$

B. $(-\infty, a) \cup [b, \infty)$, where $a \in [27.75, 33.75]$ and $b \in [34.5, 38.25]$

C. $(-\infty, a] \cup (b, \infty)$, where $a \in [27, 29.25]$ and $b \in [36.75, 38.25]$

D. $(a, b]$, where $a \in [27, 33]$ and $b \in [36.75, 37.5]$

E. None of the above.
